

CHEM 348 Organic Chemistry II
Fall 2017

Instructor:

Dr. Greg Crouch, Fulmer 414, gcrouch@wsu.edu

Prerequisite: A letter grade of C or better in Chem 345.

Contacting Instructors and TAs: Use your official WSU email account when contacting instructors or TAs. Please put "chem 348" in the subject field of the email. TA email addresses are located on the main menu of the course homepage.

Office Hours:

- Dr. Crouch: M/W/F noon-1:00 pm **and** by email appointment. When emailing for an appointment, provide several times that are open in your calendar. For example: "I would like to meet with you. My free times are Monday from 2-4pm, Wed from 9-10, and Thur from 12-2."
- TAs office hours are held in Fulmer 401. A schedule will be posted on the course website as well as on the door to Fulmer 401 no later than the first week of class.

Class Meeting:

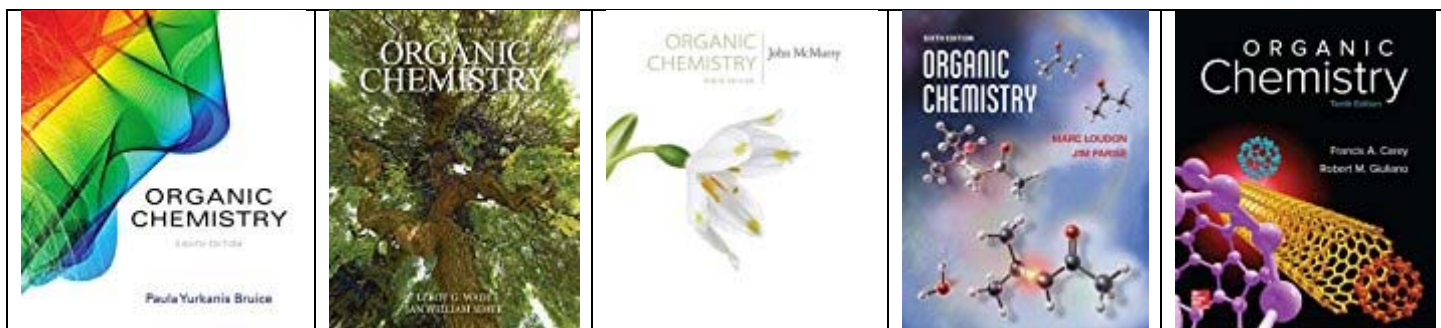
- Section 1 MWF 1:10-2:00pm SPARK 227

Course Website: All course material is on our website at:

- <http://learn.wsu.edu>
- In addition, we have a course Facebook group page at: <http://www.facebook.com/groups/chem.348>

Required Course Materials: We will be using the 8th edition of Organic Chemistry by Paula Bruice. For students who were enrolled in Chem 345 or are retaking Chem 348 using OWL2, Pearson Education has offered complimentary access codes to make the switch to Mastering Chemistry affordable. These codes will be distributed during the first week of class and will provide access to the Mastering Chemistry homework system as well as an eBook – this will save you \$60.00. In exchange for these codes, Pearson requests that you complete a feedback form to give your thoughts on how Mastering Chemistry compared to OWL2.

If you want a print copy of the book, you may purchase the Bruice book from the Bookie or find one online. A 6th or 7th edition will work fine and can easily be found on Amazon or at other booksellers. You may also find any recent (~5yr) edition of a year organic chemistry textbook. Look for John McMurry, Leroy Wade, Francis Carey, Graham Solomons, or Marc Loudon. Some covers are shown below. If you have questions about which book will work, please post them to the course Facebook page.



Finally, a model kit is required. While there is a kit at the Bookie for \$26, you may also purchase one for \$15 from:

http://www.darlingmodels.com/Individual-Orders-Molecular-Model-Kits/KIT-3-ISBN-978-09648837-4-1-MOLECULAR-VISIONS-Organic-Kit/prod_7.html

Course Objectives and Description: Students completing Chem 348 will be able to

- 1) Rationalize molecular reactivity based on functional groups,
- 2) Develop abstract reasoning skills sufficient to preform synthesis and mechanism type questions in Chem 348.
- 3) Extend problem solving skills to a small group learning community.

Couse Description

This course builds on the functional group/synthetic approach introduced in Chem 345 with a focus on synthesis and mechanism. In addition to lecture, Chem 348 provides an opportunity to develop your chemical problem solving skills through small group workshops. These workshops have limited enrollment and are run by senior teaching assistants. By participating in these workshops, you will learn useful ways of solving synthesis and mechanism problems that directly relate exams. There will be 12 workshops throughout the semester. In Chem 348, 70% of your grade is based on exams, 10% on homework, and 20% on attendance and participation in the workshops.

Workshops

There will be 12 workshops throughout the semester where attendance is required. In these workshops you will be provided with problem sets that cover important nomenclature, structures, reactions, and mechanisms that you will be responsible to learn. These problem sets and keys will be posted on the course website the following week. If you come to office hours for help on these problem sets, you must bring your work. In other words, do not bring blank pages and ask me or a TA to solve the problem. This does not help you prepare for exams.

Student Learning Outcomes:

1. Use chemical acid/base reactivity to predict chemical equilibrium.
2. Describe chemical reactivity in terms of organic functional group chemistry, including functional group transformation.
3. Interpret structural changes within a chemical framework considering bond making and bond breaking.
4. Propose reasonable mechanisms that convert starting materials to product
5. Interpret stereochemical data that informs a mechanistic hypothesis.
6. Plan an organic synthesis using a retrosynthetic approach based on known chemical reactions.
7. Work as an effective team member of a problem solving small group.

Assessment: Student Learning Outcomes 1 -6 will be assessed with homework, lecture participation, and hand-graded exams. We do not use multiple choice exams so we can assign partial credit for reasonable answers Student Learning Outcome 7 will also be assessed by attendance and participation in the 12 required workshops.

Assignments & Grading Policy: This course will be graded on the basis of homework, two midterm exams, a comprehensive final exam, and workshop participation.

- *Midterm exams:* Two hourly exams will be administered to assess subject mastery. These exams are not multiple choice. Prior semester exams are provided on the course website. The second midterm exam (as well as the final) are comprehensive. Each midterm exam is 20% of your grade. If you miss a midterm exam, your final will count at 50%
- *Final exam:* A three-hour mandatory final exam will be given at the end of the course. The final exam is worth 30% of your grade.
- *Homework:* Mastering Chemistry online homework is used in this course and is worth 10% of your grade.
- *Workshops:* Weekly problems solving workshops are worth 20% of your grade. These workshops are graded on attendance and participation. You may miss up to two Workshops and still receive full credit for this component of the course.

Grade Scale: This course will use the following grade scale. Please note this scale may change slightly from year-to-year.

A	92-100	B	83-85	C	72-76	D	61-64
A-	89-91	B-	80-82	C-	69-71	F	<60
B+	86-88	C+	77-79	D+	65-68		

Grade Summary: A sample calculation is shown below that includes a hypothetical grade for each component.

		sample calculation				
graded components	weight	score	x	weight	=	weighted score
homework	10%	70	x	0.1	=	7
test 1	20%	67	x	0.2	=	13.4
test 2	20%	62	x	0.2	=	12.4
final	30%	77	x	0.25	=	23.1
workshop	20%	90	x	0.2	=	18
	100%	sum				73.9

In the sample calculation above, the composite score of 73.9 would round to 74 and correspond to a letter grade of C according to the grade scale. However, since the final exam is comprehensive, we also consider that score alone and if it is better than the composite score, that will be the grade awarded. For this example, the final exam score is 77%, which corresponds to a letter grade of C+, so that is the grade awarded for the class.

composite score	final exam	best score	best letter grade
74	77	77	C+

We do not give make-up exams. *If you miss one hourly exam, the final exam will increase to 50% of your course grade.*

Test Schedule: All tests and exams are evening exams. If you off campus due to a university sponsored event, you may arrange for an academic counselor to proctor the exam. You must make these arrangements within the first two weeks of the semester. If you miss an hourly exam, the final exam will count at 50%.

- Test 1, Thursday September 28th from 8:00 to 10:00 pm in Todd 116 & Fulmer 226
- Test 2, Thursday November 9th from 8:00 to 10:00 pm in Todd 116 & Fulmer 226
- Final Exam, Tuesday December 12th from 7:00 to 10:00 pm, locations TBD

Tests 1 and 2 are written for a standard one-hour time frame so it is permissible to start Test 1 or Test 2 up to 9:00 pm and still have time to complete the exam. The final exam is written for an average student to complete in 90 minutes. Officially approved and scheduled night examinations have priority everything except officially scheduled lectures and labs. If you have a conflict with another evening academic activity such as a biology or physics lab course, you must arrange for an alternate test time at least two weeks prior to the exam. There is no penalty for missing an hourly exam as it simply increases the weight of the final exam. Do not make travel plans before the final exam. Your travel cannot be accommodated.

Test Policy and Regrades: Bring only your student ID, a model kit, and pencils to the exams. You will be provided scratch paper. You may not bring any electronic or internet connected device to the exam. Do not bring or leave visible any notes other than on your card. If you are observed using any electronic device, reading off fellow student's tests, or having notes other than allowed, you will fail the exam and be asked to leave the testing room. interpreted as a breach of academic integrity and will be reported. Once exams have been graded, you may pick them up from the stockroom. Look over the exam carefully and make sure the points have been added correctly. If you find an error or have a question about the grading of the exam, return it to the stockroom attendant with a regrade request form attached (you can get these from the stockroom or on the course website) – we will not re-grade an exam once you remove it from the stockroom. Be very clear when completing the regrade form. For example, "there is an error in my total points" or "on question 2, I drew the correct intermediate structure...." Avoid requests that include "I feel as if I deserve more points."

Lecture Schedule

<i>Week</i>	<i>Starting</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
Week 1	August 21	Lecture 1		Lecture 2		Lecture 3
Week 2	August 28	Lecture 4		Lecture 5		Lecture 6
Week 3	September 4	Labor Day		Lecture 7		Lecture 8
Week 4	September 11	Lecture 9		Lecture 10		Lecture 11
Week 5	September 18	Lecture 12		Lecture 13		Lecture 14
Week 6	September 25	Lecture 15		Review	Test 1	No lecture
Week 7	October 2	Lecture 16		Lecture 17		Lecture 18
Week 8	October 9	Lecture 19		Lecture 20		Lecture 21
Week 9	October 16	Lecture 22		Lecture 23		Lecture 24
Week 10	October 23	Lecture 25		Lecture 26		Lecture 27
Week 11	October 30	Lecture 28		Lecture 29		Lecture 30
Week 12	November 6	Lecture 31		Review	Test 2	Veteran's Day
Week 13	November 13	Lecture 32		Lecture 33		Lecture 34
	November 20	Thanksgiving Vacation				
Week 14	November 27	Lecture 35		Lecture 36		Lecture 37
Week 15	December 4	Review		Review		Review
Finals	December 12		Final Exam 7-10 pm			

Lecture Topics: Given that we will only cover selected sections in the required textbook, lecture slides will be available in advance of lecture on the course website. You may use these to orient lecture with readings from the textbook.

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information, contact a Disability Specialist

Academic Integrity: You are encouraged you to work with classmates on assignments, however, each student must turn in original work. No copying will be accepted. Falsified lab data is also a violation of academic integrity. Students who violate WSU's Standards of Conduct for Students will receive an F as a final grade in this course, will not have the option to withdraw from the course, and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions. In addition, if during an exam you use an internet connected or other electronic devices, you will fail the exam and be reported as described above.

Safety Statement: Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (<http://safetyplan.wsu.edu/>) and visit the Office of Emergency Management web site (<http://oem.wsu.edu/>) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.